

Poster presentation

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Pre-workout consumption of Celsius® enhances the benefits of chronic exercise on body composition and cardiorespiratory fitness

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Background

The functional beverage Celsius®, has recently been shown, after acute and chronic (28 days) consumption, to increase resting metabolism and serum blood markers of lipolysis in healthy, college-aged men and women. The purpose of this study was to examine the combined effects of a 10-week exercise program while consuming Celsius® on body composition and cardiorespiratory fitness changes in sedentary men and women.

Methods

In a double-blind, placebo-controlled design, sedentary men ($n = 20$) and women ($n = 18$) were randomly assigned to identically-tasting treatment (Celsius®; age 27 ± 1.6 yrs, men $n = 10$; women $n = 8$) or placebo (PL; 24.7 ± 1.4 yrs, men $n = 10$; women $n = 10$) beverages. Both groups participated in a 10-week exercise program under the supervision of a certified trainer. The endurance and resistance training program was established using the American College of Sports Medicine guidelines for apparently healthy adults. Prior to each workout (15 min), participants consumed Celsius® or PL. Additionally, on non-training days, participants consumed the same beverage *ad libitum*. Changes in fat mass (FM), and fat-free mass (FFM) were assessed using a five-compartment model, which included body volume, bone mineral content, soft tissue mineral, and total body water measure-

ments. Changes in cardiorespiratory fitness (VO_{2peak}), and time-to-exhaustion (TTE) were assessed using a metabolic cart during a graded exercise test on a calibrated, electronically-braked cycle ergometer.

Results

A two-way ANOVA [group (Celsius® vs. PL) \times time (pre vs. post)] resulted in a significant interaction for FM ($F = 5.452$, $P < 0.05$), VO_{2peak} ($F = 20.63$, $P < 0.01$), and TTE ($F = 10.453$, $P < 0.01$). Post-Hoc analysis revealed significantly ($P < 0.05$) greater changes in Celsius® versus PL for FM (-6.6% vs. -0.35%), VO_{2peak} (+13.8% vs. 5.4%), and TTE (+19.7% vs. 14.0%). In addition, there was a main effect for time for FFM ($F = 12.57$, $P < 0.01$). While no significant difference resulted between the treatment groups, only the Celsius® group experienced a significant increase in FFM from pre to post (+2.0%; $P < 0.01$) versus PL group (+1.0%, $P > 0.05$).

Conclusion

Our data suggest that consuming a single serving of Celsius® prior to working out may enhance the positive adaptations of chronic exercise on body composition and cardiorespiratory fitness and endurance performance in sedentary men and women.

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